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## (54) PROPOLIS EXTRACT-CONTAINING BEVERAGE

## (57)Abstract:

PURPOSE: To obtain a propolis extract-containing beverage, stably containing a propolis extract, capable of reducing secondary precipitation, and further a strong irritant taste, excellent in water dispersibility, keeping quality for a long period and taste and useful as an agent for anti-sensitive diseases, etc.

CONSTITUTION: This propolis extract-containing beverage contains preferably  $\geq 0.001\text{wt.\%}$  propolis expressed in terms of extraction solid content and more preferably 0.005–0.08wt.% xanthan gum. Furthermore, an emulsifying agent is preferably contained therein.

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**JAPANESE** [JP,07-075534,A]

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CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL PROBLEM  
MEANS EXAMPLE

.....  
[Translation done.]

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## CLAIMS

## [Claim(s)]

[Claim 1] The propolis extractives content drink characterized by containing propolis extractives in stability.

[Claim 2] The propolis extractives content drink according to claim 1 which makes propolis extractives extract solid content and contains them 0.001% of the weight or more.

[Claim 3] The propolis extractives content drink characterized by containing propolis extractives and xanthan gum.

[Claim 4] The propolis extractives content drink characterized by containing propolis extractives, xanthan gum, and an emulsifier.

[Claim 5] The propolis extractives content drink according to claim 3 or 4 which contains xanthan gum 0.005 to 0.08% of the weight.

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DETAILED DESCRIPTION

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## [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention is a thing about the propolis extractives content drink which contains the propolis extractives of a natural product extract component in stability. In more detail It improves water-dispersion [ which was made into the trouble at the time of using propolis extractives conventionally ]. Moreover, the secondary precipitation seen during prolonged preservation is decreased certainly, and it is related with the new propolis extractives content drink which makes it possible to reduce notably the strong stimulus taste in the oral cavity still more peculiar to propolis, and to improve the flavor.

[0002]

[Description of the Prior Art] A honeybee is the resinoid stored in a bird box, various components, such as resin, yellow bees wax, essential oil, pollen, and flavonoid, are contained in this, and propolis is used for it as a folk-remedies medicine for many years. Although various use gestalten are considered when using such propolis conventionally, generally it is used in the form of propolis extractives. That is, propolis is the so-called massive object, and, as for the principal component, it is common to be used as liquefied propolis extractives which usually extract with the high concentration solution of hydrophilic organic solvents, such as ethanol, and are obtained from it being the hydrophobic matter.

[0003] By the way, it is known that the hydrophobic matter which is the principal component of propolis extractives is the flavones aglycon of the central drug effect component of propolis. Although the attempt which uses this as a drink component etc. was variously performed paying attention to the drug effect component conventionally contained in such propolis extractives, if propolis extractives were diluted with water, since a melttable propolis component deposited in an ununiformity and it condenses or agglomerated to the hydrophilic organic solvent contained in extractives, it was quite difficult technically to dilute and drink-ize this.

[0004] Moreover, there was a field which does not get used to drink-ization in the point of a flavor, such as a melttable component depositing like the case the high concentration solvent and melttable component of propolis extractives not only stimulating the tunica mucosa oris, but where propolis extractives were diluted with saliva after intake, and it dilutes with water on the occasion of an ingestion, and producing stickiness and giving displeasure into the oral cavity.

[0005] therefore, in case the active principle of propolis is drink-ized in the fully used form So that it may be equal to a mothball further in that it is necessary to improve water-dispersion, without removing the active principle, and the form which maintained the physical properties at stability as a drink It must also decrease or prevent certainly that a drink component precipitates secondarily. To clear synthetically technical problems, like it is necessary to make coincidence reduce certainly the strong stimulus taste in the oral cavity peculiar to propolis, and to aim at an improvement also in the point of a flavor was needed.

[0006] It is under this situation, the various attempts for solving various kinds of problems which serve as a neck of use of such propolis conventionally are performed, and the new use technique of propolis extractives is proposed variously until now. If the typical thing is illustrated, after carrying out the dewaxing process of the water-soluble organic solvent extract of propolis, manufacturing method (JP,61-197523,A) \*\* of the water-dispersion propolis content pharmaceutical preparation characterized by crystallization and making it solidify, adding an emulsifier and an anti-oxidant subsequently, and drying is proposed in the antimicrobial activity component by the water-soluble excipient, for example. However, since this approach is not used as a drink component for the purpose of manufacturing the high water-dispersion propolis content pharmaceutical preparation of antimicrobial activity, any reference is not made about the point of a flavor, either.

[0007] Moreover, as a propolis component content solid state material with water-dispersion [ good ], and its manufacture approach, one or more sorts of sugar chosen from the quality of anhydrosugar and cyclodextrin is made to contain a hydrophilic organic solvent melttable propolis component content water solution, it is dehydrated, and manufacture approach (JP,4-316459,A) \*\* of the propolis component content solid state material characterized by making it a solid state material is proposed.

[0008] Moreover, while making into water-soluble high alpha-glucosyl flavones the flavones aglycon which is flavonoid in propolis extractives as a manufacturing method of water-soluble propolis pharmaceutical preparation using a glycosyltransferase, approach (JP,4-312597,A) \*\* which uses this for ingesta, an anti-susceptibility disease agent, cosmetics, etc. is proposed. However, as for propolis extractives, the component configurations completely differ with natural, even if it does not pass over a flavones aglycon for some components of the flavonoid in propolis but takes out only the flavones aglycon concerned, and since, as for the propolis extractives whose flavones aglycon which carried out sugar transition is a natural product, the positioning differs clearly, the approach concerned differs from the use technique of the propolis extractives itself.

[0009] moreover, the monohydric alcohol melttable propolis component obtained from the monohydric alcohol extract or this monohydric alcohol extract of propolis be make to exist in two or more OH radical content media which homogeneity - dissolve or distributed [ stable ] polyol and a fatty acid ester system surfactant and which can carry out hydrogen bond as the propolis food constituent using the monohydric alcohol extract of propolis , and its manufacture approach , and manufacture approach ( JP,4-66544,B ) \*\* of the propolis food constituent characterize by include the process which carry out mixed stirring be propose . However, although it has the description for this approach to remove the alcohol in the propolis extractives obtained from a monohydric-alcohol extract, and emulsify it with an emulsifier, the production process was a little complicated and was what can be called so to speak very special thing.

[0010] Moreover, manufacturing method (JP,5-957,A) \*\* of the water-soluble propolis pharmaceutical preparation which adds propolis to a glycerol, carries out heating stirring as the manufacture approach of water-soluble propolis pharmaceutical preparation at 95-160 degrees C, and is characterized by removing insoluble matter at the time of heat is proposed. Although it

is used suitable for physic, the charge of makeup, etc. since the propolis pharmaceutical preparation obtained by this approach consists of a glycerol extract of propolis extractives, it melts into water well and insoluble matter is not included. When it originally takes into consideration that the main active principle of propolis extractives is what is contained as ethanol extractives, a glycerol extract A mistake is made in becoming and, unlike the so-called use technique of propolis extractives, the approach concerned is considered [ the thing of original / presentation / of the extract component /, or ].

[0011] Thus, although the attempt using a propolis component is performed variously conventionally, while being able to use the so-called propolis extractives itself in a form as it is. About the use technique of the propolis extractives which use the active principle of propolis extractives in the form where the outstanding property was fully employed efficiently, as a drink component It is hardly proposed until now but improves water-dispersion [ which was made into the trouble at the time of using propolis as a drink component conventionally especially ]. Moreover, the secondary precipitation of a drink component seen when a mothball is carried out is decreased or prevented certainly. Furthermore, developing the use technique of the new propolis extractives which the strong stimulus taste in the oral cavity peculiar to propolis is reduced certainly, and can improve the flavor suited the situation currently strongly demanded in this industry.

[0012] [Problem(s) to be Solved by the Invention] While being able to cancel certainly the various troubles that the use technique of the conventional propolis extractives sees, based on such a situation, this invention persons in the propolis extractives itself. Moreover, it improves water-dispersion [ of the propolis extractives at the time of using as a drink component ], without performing any processing. Moreover, the problem of the secondary precipitation of a drink component seen at the time of a mothball is solved certainly. Furthermore, the result of having repeated research wholeheartedly for the purpose of developing the new method of reducing the strong stimulus taste in the oral cavity, and improving the flavor, By using xanthan gum and an emulsifier together with propolis extractives, it finds out that the desired end can be attained and came to complete this invention.

[0013] This invention aims at offering the propolis extractives content drink which made it possible to improve water-dispersion [ the ] to a good thing in the propolis extractives itself, without performing any processing.

[0014] Moreover, conventionally, this invention solves certainly the problem of the secondary precipitation which occurs as an unescapable thing at the time of a mothball, and aims at offering the propolis extractives content drink which made it possible to enable it to be equal to a mothball.

[0015] Moreover, this invention reduces the strong stimulus taste peculiar to the propolis in the oral cavity, and aims at offering the propolis extractives content drink which made it possible to improve the flavor.

[0016] [Means for Solving the Problem] This invention for attaining such a purpose consists of technical means of following (1) - (5).

(1) The propolis extractives content drink characterized by containing propolis extractives in stability.

[0017] (2) The propolis extractives content drink of the aforementioned (1) publication which makes propolis extractives extract solid content and contains them 0.001% of the weight or more.

[0018] (3) The propolis extractives content drink characterized by containing propolis extractives and xanthan gum.

[0019] (4) The propolis extractives content drink characterized by containing propolis extractives, xanthan gum, and an emulsifier.

[0020] (5) The above (3) which contains xanthan gum 0.005 to 0.08% of the weight, or a propolis extractives content drink given in (4).

[0021] Next, this invention is further explained to a detail. This invention relates to the propolis extractives content drink which contains propolis extractives in stability, and the propolis extractives content drink characterized by using xanthan gum and an emulsifier together in propolis extractives especially. What is equivalent to the extractives or it containing the active principle of the propolis obtained by performing extract or processing equivalent to this from the propolis extracted more commercially than the blow hole of a honeybee, or its prototype is meant as the propolis extractives as used in the field of [ here ] this invention, and if it is the usual propolis extractives, what is equivalent to it, or its prototype, regardless of the class, it can be used suitably.

[0022] Here, propolis is the aggregate of viscous gum, resin, and perfumed oil, by the honeybee, it is extracted from the bud and bark of a tree, is brought back to a bird box, and means other matter and the tarry material which mainly mixed yellow bees wax and a salivation object, and was made. Such propolis has pharmacological actions, such as an antibacterial action, virus multiplication depressant action, a local-anesthesia operation, anti-inflammatory activity, and an antioxidation operation, and the applications, such as fine arts and coating liquid for differentiation goods protection besides drugs, cosmetics, and an eating-and-drinking article, are various. The property of such propolis is inconvenient to use it for it, if it remains as it is in water since it is poorly soluble, and it cannot demonstrate the effectiveness enough, either. Then, the present condition is organic solvents', such as alcohol's, extracting propolis, obtaining a propolis extract generally, and used in the form of this extract, i.e., extractives.

[0023] Although what embellished not only the form of propolis extractives but the specific active principle in propolis in various forms is conventionally used as described above In this invention, propolis extractives to itself With the propolis extractives as used in the field of [ use in a form as it is and ] here therefore, without performing any processing Although described above, the extract which extracts propolis with the ethyl alcohol extract which extracts with ethyl alcohol and is obtained. or a food solvent equivalent to this, and is obtained especially is raised as a suitable thing.

[0024] On the other hand, the xanthan gum (Xanthan Gum) used in this invention is known at the northern United-States-Department-of-Agriculture lab in early the 1960s as natural macromolecule polysaccharide developed in the manufacture research process of a dextran. Namely, the microorganism cultured purely. Xanthomonas Polysaccharide will be generated by the fungus body cell membrane outer wall if capestris is fermented in the culture medium which used amylosis objects, such as grape sugar and a starch syrup, as the principal component. It is xanthan gum which carried out precipitation separation, and dried and ground this polysaccharide in alcohol.

[0025] The molecule of this xanthan gum consists of a mannose, a glucose, and potassium sodium calcium mixed salt of glucuronic acid, and that molecular weight is about 2 million. As a food additive, it is approved in every country in the world including the United States, and is raised with FAO/WHO to the direct additive by 10 or less mg/kg of charges of intake in FDA of the United States for permission one day at A (1) list. Moreover, it is recognized by natural additives also in Japan and independence specification is enacted in Japan Food Additives Association. This xanthan gum is used, in this invention, if it is xanthan gum, it can be used regardless of the class and a gestalt, but if it is the thing of not only this but this, and this effect, it can be used similarly.

[0026] In this invention, 0.01 – 0.03% of the weight of the range is desirable especially preferably 0.005 to 0.08% of the weight as a content of the xanthan gum concerned. When there is more effectiveness for not producing secondary precipitation when there are few contents of the xanthan gum concerned than 0.005 % of the weight unstably than 0.08 % of the weight, it is too high and unsuitable as a drink, and viscosity of a solution cannot attain the desired end and is not desirable.

[0027] Furthermore, in this invention, although the case where the emulsifier other than xanthan gum is used together is included, as an emulsifier in this case, it can perform independent or combining and using from inside of the emulsifier usually used, such as natural emulsifiers, such as well-known lecithin, propylene glycol fatty acid ester, a sorbitan fatty acid ester, a sucrose fatty acid ester, and a glycerine fatty acid ester. For example, when combining a sucrose fatty acid ester and other emulsifiers, it is suitable to use combining a sorbitan fatty acid ester and a glycerine fatty acid ester. As a glycerine fatty acid ester said here, the monoglyceride of organic acids, such as a monoglyceride, an acetic-acid monoglyceride, a lactic-acid monoglyceride, a citric-acid monoglyceride, a diacetyl tartaric-acid monoglyceride, an acetic acid and a tartaric-acid mixing monoglyceride, a tartaric-acid monoglyceride, and a succinic-acid monoglyceride, polyglycerol fatty acid ester, polyglycerin condensation RISHINOREN acid ester, etc. are raised.

[0028] In this invention, 0.03 – 0.3 % of the weight is desirable especially preferably 0.003 to 0.5% of the weight as a content of the emulsifier concerned. When there are few contents of the emulsifier concerned than 0.003 % of the weight, a combined effect cannot be expected, but the nasty smell of the emulsifier origin when [ than 0.5 % of the weight ] more occurs again, and it is not desirable in flavor.

[0029] Next, although these xanthan gum independence is used together in the above mentioned propolis extractives in this invention, an emulsifier is used together to this and a propolis extractives content drink is manufactured by making it contain With the propolis extractives content drink as used in the field of this invention If it is the liquid drink which contains the propolis extractives concerned in stability, what kind of thing may be used and especially the class is not limited, but if it is illustrated For example, a nourishment strong drink, a soft drink, juice, a fermented milk drink, a carbonated drink, an alcoholic beverage, a tea drink, etc. are raised as a suitable thing.

[0030] Next, the manufacture approach of the propolis extractives content drink of this invention is explained. As propolis extractives used by this invention, although it can be used as it is, commercial thing (product made from API), for example, ROYA ruby pro etc., etc., it is also possible suitably to extract and prepare propolis extractives by ethanol from the propolis extracted as follows more commercially than the blow hole of a honeybee. That is, it faces enforcing the manufacturing method of this invention, propolis is added to the ethyl alcohol of the amount which is sufficient for propolis fully being immersed first, and heating stirring is carried out under reduced pressure or ordinary pressure. In this case, more than the amount of 2 double of propolis of the amount of ethyl alcohol (weight) is desirable. Heating is 40–80 degrees C preferably under ordinary pressure, and the water-soluble useful component of propolis is extracted by ethyl alcohol by stirring gently at the temperature of this range for 30 minutes to 2 hours. Padding of propolis is large, or since an extract takes a long time in being very hard, extract time amount can be shortened by carrying out the spray of the ethyl alcohol to padding of propolis, carrying out sealing neglect for several hours, and making padding soft.

[0031] Thus, the propolis extractives used by this invention are obtained by extracting the fusibility component of propolis with a conventional method using ethyl alcohol, and separating the ethyl alcohol which contains the fusibility component concerned as occasion demands from an insoluble component. The propolis extractives content drink of this invention makes the propolis extractives concerned extract solid content, and contains them 0.001% of the weight or more. Although it was difficult to manufacture conventionally the drink which contains 0.001% of the weight or more of hydrophobic propolis extractives in stability, this invention makes it possible to offer the propolis extractives content drink which contains the propolis extractives concerned 0.001% of the weight or more, and contains this in stability.

[0032] On the other hand, to the propolis extractives concerned, xanthan gum is added so that the content in a drink may become 0.005 – 0.08% of the weight. Namely, dissolve xanthan gum in water with a proper drink constituent, and said propolis extractives are added to this. After being filled up with what added water and was further made into the whole quantity after fully stirring and mixing and making it homogeneity into containers, such as a glass bottle, a plastics cup, a container made of paper, and a can container, 90 degrees C and low-temperature heat sterilization processing of a 10-second about room can be performed, and a final product can be prepared. Although much more remarkable effectiveness will be acquired if an emulsifier is further used together in this case, the approach of adding an emulsifier in propolis extractives and adding this to the drink constituent containing said xanthan gum in this case, is raised as a suitable thing. However, it is possible suitably not only this but to add the emulsifier concerned with xanthan gum in the \*\*\*\* aforementioned drink constituent.

[0033] In this invention, although based on containing the above-mentioned propolis extractives and xanthan gum, and an emulsifier in a drink, a proper drink component can be further added to this if needed. In this case, as a component which constitutes a drink constituent, proper components, such as saccharides, such as purification honey, anhydrous citric acid, the charge of pH adjustment, sucrose, grape sugar, a sorbitol, a maltose, fructose, invert sugar, and a starch syrup, polysaccharide, an acidulant, a seasoning, a flavoring, a synthetic sweetner, a vegetable fiber, vegetable extractives, animal extractives, a mineral, vitamins, a coloring agent, a preservative, and perfume, can be added additionally. In addition, it is desirable to adjust pH of a drink constituent to 3.6–7.0 in this case.

[0034] The propolis extractives content drink of this invention manufactured as mentioned above It is what is characterized by making propolis extractives contain the xanthan gum independence or the xanthan gum, and the emulsifier of said amount of specification. By this While making it possible to improve water-dispersion [ which was made into the trouble in the case of using propolis conventionally ] to a good thing, without performing any processing to the propolis extractives itself The secondary precipitation of a drink component seen at the time of a mothball is decreased certainly, and it makes it possible to make good notably the flavor of reduction-ized Perilla frutescens (L.) Britton var. crispa (Thunb.) Decne. for the strong stimulus taste still more peculiar to the propolis in the oral cavity. It is the form where such an active principle of propolis was employed efficiently as it was, and there is no example which was reported until now according to the place where this invention persons learn the approach of reduction-izing certainly the stimulus taste in the oral cavity peculiar to propolis while making it possible to raise the availability, and it can be said that it is the new knowledge found out for the first time by this invention persons. In addition, the propolis content drink which contains the propolis extractives of this invention in stability is included by the range of the propolis content drink of this invention as long as it has the equivalent property similarly manufactured using the thing of not only the above-mentioned xanthan gum but the it and this effect.

[0035] [Example] Next, although an example is shown and this invention is explained still more concretely, this invention is not limited to

the example concerned.

Propolis extractives (20% [ of extract solid content ], ethanol 80%) 0.5ml from Brazil was added after dissolving example 1 - 31 method-of-preparation xanthan gum ("SANESU E-S", San-Ei Gen F.F.I., Inc. make) 0.005g, 15.0g of purification honey, and 0.05g of anhydrous citric acid in 90g of water, stirring mixing was fully carried out, water was added further and the whole quantity was set to 100ml. This was made into the preservation sample (example 1) for 90 degrees C and 10 seconds and after heating. Moreover, similarly, the xanthan gum [ 0.01g (example 2) and 0.02g (example 3) ] ("SANESU E-S", San-Ei Gen F.F.I., Inc. make) system was also prepared, and it considered as the preservation sample.

[0036] Moreover, as an example of contrast, propolis extractives (20% [ of extract solid content ], ethanol 80%) 0.5ml from Brazil was added after dissolving 15.0g of purification honey, and 0.05g of anhydrous citric acid in 90g of water, stirring mixing was fully carried out, water was added further and the whole quantity was set to 100ml. This was made into the preservation sample for 90 degrees C and 10 seconds and after heating.

[0037] 2) The evaluation trial was carried out about each item of a dissolution condition, the secondary-about each sample prepared with the evaluation test above 1 precipitation at the time of preservation, and flavor. In this case, it evaluated about the precipitation condition at the time of saving for two weeks by 37 degrees C of preservation for two weeks at 5 degrees C of preservation about the secondary precipitation at the time of preservation. The organoleptics of five panels performed flavor again by evaluation of each item observing the appearance with a conventional method, and evaluating it about a dissolution condition and the precipitation condition at the time of preservation.

[0038] 3) The result of the evaluation trial beyond a result is shown in Table 1. In addition, in Table 1, it shows that the amount increases, so that the precipitation in the massive object deposit in a dissolution condition and preservation has (much +). The stimulus taste in flavor is organic-functions evaluation of five panels, shows the degree of the stimulus taste in the oral cavity, and it shows that the strength is increased, so that there is (much +). It was checked by adding xanthan gum that the effectiveness which suppresses a deposit of the massive object at the time of the dissolution, and improves water-dispersion [ the ], and controls separation of the component under preservation and precipitation is acquired as the examples 1-3 of Table 1 saw the above result. Furthermore, it was checked that the strong stimulus taste in the oral cavity peculiar to propolis is also reduced notably, and can improve the flavor. On the other hand, in the case of the example of a comparison which does not contain xanthan gum, such effectiveness was not able to be acquired.

[0039]

[Table 1]

表1 各製品の評価試験結果

	対照例	実施例1	実施例2	実施例3
処方 (100ml当たり)				
プロポリスエキス	0.5 ml	0.5 ml	0.5 ml	0.5 ml
キサンタンガム	—	0.005 g	0.01 g	0.02 g
蜂蜜	15.0 g	15.0 g	15.0 g	15.0 g
無水クエン酸	0.05 g	0.05 g	0.05 g	0.05 g
pH	2.96	2.96	2.98	3.00
Bx	11.8	11.8	11.8	11.8
溶解状態	塊状物析出 +++	塊状物析出 ++	塊状物析出 +	塊状物析出 +
風味	刺激味 +++	刺激味 ++	刺激味 +	刺激味 +
保存 5°C 2週	上部清澄化 沈殿分離	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿+
保存 37°C 2週	完全清澄化 沈殿分離	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿+

+++～+：塊状物析出、刺激味、沈殿の量的な多少の程度を示す。

[0040] The liquid which dissolved 0.05g (HLB15) of sucrose fatty acids ester was added to propolis extractives (20% [ of extract solid content ], ethanol 80%) 0.5ml from Brazil after dissolving example 4 - 61 method-of-preparation xanthan gum ("SANESU E-S", San-Ei Gen F.F.I., Inc. make) 0.005g, 30.0g of purification honey, and 0.05g of anhydrous citric acid in 90g of water, stirring mixing was fully carried out, water was added further and the whole quantity was set to 100ml. This was made into the preservation sample (example 4) for 90 degrees C and 10 seconds and after heating. Moreover, similarly, the xanthan gum [ 0.01g (example 5) and 0.02g (example 6) ] ("SANESU E-S", San-Ei Gen F.F.I., Inc. make) system was also prepared, and it considered as the preservation sample.

[0041] Moreover, the liquid which dissolved 0.05g (HLB15) of sucrose fatty acids ester was added to propolis extractives (20% [ of extract solid content ], ethanol 80%) 0.5ml from Brazil as an example of contrast after dissolving 30.0g of purification honey, and 0.05g of anhydrous citric acid in 90g of water, stirring mixing was fully carried out, and this was made into the preservation sample for 90 degrees C and 10 seconds and after heating.

[0042] 2) The evaluation trial was carried out about each item of a dissolution condition, the secondary-about each sample prepared with the evaluation test above 1 precipitation at the time of preservation, and flavor. In this case, it evaluated about the precipitation condition at the time of saving for two weeks by 37 degrees C of preservation for two weeks at 5 degrees C of preservation about the secondary precipitation at the time of preservation. The organoleptics of five panels performed flavor again by evaluation of each item observing the appearance with a conventional method, and evaluating it about a dissolution condition and the precipitation condition at the time of preservation.

[0043] 3) The result of the evaluation trial beyond a result is shown in Table 2. In addition, in Table 2, it shows that the amount increases, so that the precipitation in preservation has (much +). The stimulus taste in flavor is organic-functions evaluation of five panels, shows the degree of the stimulus taste in the oral cavity, and it shows that the strength is increased, so that there is (much +). Although it was checked by adding an emulsifier that a deposit of the massive object at the time of the dissolution can be suppressed as it saw at the above result, it decreased primary precipitation that it will be found out that that solubility increases further and it will raise Bx if a deposit of the massive object at the time of melting raises Bx (Brix) in this case, and it

turned out that it is effective in keeping a dissolution condition good. Furthermore, it was checked by using xanthan gum together that secondary precipitation of the component under preservation can be decreased certainly, and the stimulus taste in the oral cavity can be notably reduced also in flavor, and the flavor can be improved. On the other hand, in the case of the example of a comparison which does not contain xanthan gum, such effectiveness was not able to be acquired. In addition, when the class of emulsifier was changed and having been examined similarly, the almost same result was obtained.

[0044]

[Table 2]

表2 各製品の評価試験結果

	対照例	実施例4	実施例5	実施例6
処方 (100ml当たり)				
プロポリスエキス	0.5 ml	0.5 ml	0.5 ml	0.5 ml
蔗糖脂肪酸エステル	0.05 g	0.05 g	0.05 g	0.05 g
キサンタンガム	—	0.005 g	0.01 g	0.02 g
蜂蜜	30.0 g	30.0 g	30.0 g	30.0 g
無水クエン酸	0.05 g	0.05 g	0.05 g	0.05 g
pH	2.96	2.96	2.98	3.00
Bx	23.5	23.5	23.5	23.5
溶解状態	塊状物析出 無し	塊状物析出 無し	塊状物析出 無し	塊状物析出 無し
風味	刺激味 ++	刺激味 ++	刺激味 +	刺激味 +
保存5℃ 2週	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿+	乳濁 沈殿+
保存37℃ 2週	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿+	乳濁 沈殿+

++～±：塊状物析出、刺激味、沈殿の量的な多少の程度を示す。

[0045]

[Effect of the Invention] According to this invention, the following effectiveness is acquired about the drink with which this invention contains propolis extractives in stability, and the propolis content drink further characterized by containing propolis extractives and xanthan gum, and an emulsifier as explained in full detail above.

- (1) It can improve water-dispersion [ the ] to a good thing, without performing any processing to the propolis extractives itself.
- (2) Conventionally, when a mothball is carried out, the seen secondary precipitation can be decreased certainly and the product which is equal to a mothball as a drink can be manufactured simple.
- (3) The strong stimulus taste peculiar to the propolis in the oral cavity can be reduced notably, and the flavor can be improved to a good thing.

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## TECHNICAL FIELD

[Industrial Application] This invention is a thing about the propolis extractives content drink which contains the propolis extractives of a natural product extract component in stability. In more detail It improves water-dispersion [ which was made into the trouble at the time of using propolis extractives conventionally ]. Moreover, the secondary precipitation seen during prolonged preservation is decreased certainly, and it is related with the new propolis extractives content drink which makes it possible to reduce notably the strong stimulus taste in the oral cavity still more peculiar to propolis, and to improve the flavor.

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## PRIOR ART

[Description of the Prior Art] A honeybee is the resinoid stored in a bird box, various components, such as resin, yellow bees wax, essential oil, pollen, and flavonoid, are contained in this, and propolis is used for it as a folk-remedies medicine for many years. Although various use gestalten are considered when using such propolis conventionally, generally it is used in the form of propolis extractives. That is, propolis is the so-called massive object, and, as for the principal component, it is common to be used as liquefied propolis extractives which usually extract with the high concentration solution of hydrophilic organic solvents, such as ethanol, and are obtained from it being the hydrophobic matter.

[0003] By the way, it is known that the hydrophobic matter which is the principal component of propolis extractives is the flavones aglycon of the central drug effect component of propolis. Although the attempt which uses this as a drink component etc. was variously performed paying attention to the drug effect component conventionally contained in such propolis extractives, if propolis extractives were diluted with water, since a meltable propolis component deposited in an ununiformity and it condenses or agglomerated to the hydrophilic organic solvent contained in extractives, it was quite difficult technically to dilute and drink-ize this.

[0004] Moreover, there was a field which does not get used to drink-ization in the point of a flavor, such as a meltable component depositing like the case the high concentration solvent and meltable component of propolis extractives not only stimulating the tunica mucosa oris, but where propolis extractives were diluted with saliva after intake, and it dilutes with water on the occasion of an ingestion, and producing stickiness and giving displeasure into the oral cavity.

[0005] therefore, in case the active principle of propolis is drink-ized in the fully used form So that it may be equal to a mothball further in that it is necessary to improve water-dispersion, without removing the active principle, and the form which maintained the physical properties at stability as a drink It must also decrease or prevent certainly that a drink component precipitates secondarily. To clear synthetically technical problems, like it is necessary to make coincidence reduce certainly the strong stimulus taste in the oral cavity peculiar to propolis, and to aim at an improvement also in the point of a flavor was needed.

[0006] It is under this situation, the various attempts for solving various kinds of problems which serve as a neck of use of such propolis conventionally are performed, and the new use technique of propolis extractives is proposed variously until now. If the typical thing is illustrated, after carrying out the dewaxing process of the water-soluble organic solvent extract of propolis, manufacturing method (JP,61-197523,A) \*\* of the water-dispersion propolis content pharmaceutical preparation characterized by crystallization and making it solidify, adding an emulsifier and an anti-oxidant subsequently, and drying is proposed in the antimicrobial activity component by the water-soluble excipient, for example. However, since this approach is not used as a drink component for the purpose of manufacturing the high water-dispersion propolis content pharmaceutical preparation of antimicrobial activity, any reference is not made about the point of a flavor, either.

[0007] Moreover, as a propolis component content solid state material with water-dispersion [ good ], and its manufacture approach, one or more sorts of sugar chosen from the quality of anhydrosugar and cyclodextrin is made to contain a hydrophilic organic solvent meltable propolis component content water solution, it is dehydrated, and manufacture approach (JP,4-316459,A) \*\* of the propolis component content solid state material characterized by making it a solid state material is proposed.

[0008] Moreover, while making into water-soluble high alpha-glucosyl flavones the flavones aglycon which is flavonoid in propolis extractives as a manufacturing method of water-soluble propolis pharmaceutical preparation using a glycosyltransferase, approach (JP,4-312597,A) \*\* which uses this for ingesta, an anti-susceptibility disease agent, cosmetics, etc. is proposed. However, as for propolis extractives, the component configurations completely differ with natural, even if it does not pass over a flavones aglycon for some components of the flavonoid in propolis but takes out only the flavones aglycon concerned, and since, as for the propolis extractives whose flavones aglycon which carried out sugar transition is a natural product, the positioning differs clearly, the approach concerned differs from the use technique of the propolis extractives itself.

[0009] moreover, the monohydric alcohol meltable propolis component obtained from the monohydric alcohol extract or this monohydric alcohol extract of propolis be make to exist in two or more OH radical content media which homogeneity - dissolve or distributed [ stable ] polyol and a fatty acid ester system surfactant and which can carry out hydrogen bond as the propolis food constituent using the monohydric alcohol extract of propolis, and its manufacture approach , and manufacture approach ( JP,4-66544,B ) \*\* of the propolis food constituent characterize by include the process which carry out mixed stirring be propose . However, although it has the description for this approach to remove the alcohol in the propolis extractives obtained from a monohydric-alcohol extract, and emulsify it with an emulsifier, the production process was a little complicated and was what can be called so to speak very special thing.

[0010] Moreover, manufacturing method (JP,5-957,A) \*\* of the water-soluble propolis pharmaceutical preparation which adds propolis to a glycerol, carries out heating stirring as the manufacture approach of water-soluble propolis pharmaceutical preparation at 95-160 degrees C, and is characterized by removing insoluble matter at the time of heat is proposed. Although it is used suitable for physic, the charge of makeup, etc. since the propolis pharmaceutical preparation obtained by this approach consists of a glycerol extract of propolis extractives, it melts into water well and insoluble matter is not included When it originally takes into consideration that the main active principle of propolis extractives is what is contained as ethanol extractives, a glycerol extract A mistake is made in becoming and, unlike the so-called use technique of propolis extractives, the approach concerned is considered [ the thing of original / presentation / of the extract component /, or ].

[0011] Thus, although the attempt using a propolis component is performed variously conventionally, while being able to use the so-called propolis extractives itself in a form as it is About the use technique of the propolis extractives which use the active principle of propolis extractives in the form where the outstanding property was fully employed efficiently, as a drink component

It is hardly proposed until now but improves water-dispersion [ which was made into the trouble at the time of using propolis as a drink component conventionally especially ]. Moreover, the secondary precipitation of a drink component seen when a mothball is carried out is decreased or prevented certainly. Furthermore, developing the use technique of the new propolis extractives which the strong stimulus taste in the oral cavity peculiar to propolis is reduced certainly, and can improve the flavor suited the situation currently strongly demanded in this industry.

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EFFECT OF THE INVENTION

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[Effect of the Invention] According to this invention, the following effectiveness is acquired about the drink with which this invention contains propolis extractives in stability, and the propolis content drink further characterized by containing propolis extractives and xanthan gum, and an emulsifier as explained in full detail above.

- (1) It can improve water-dispersion [ the ] to a good thing, without performing any processing to the propolis extractives itself.
- (2) Conventionally, when a mothball is carried out, the seen secondary precipitation can be decreased certainly and the product which is equal to a mothball as a drink can be manufactured simple.
- (3) The strong stimulus taste peculiar to the propolis in the oral cavity can be reduced notably, and the flavor can be improved to a good thing.

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] While being able to cancel certainly the various troubles that the use technique of the conventional propolis extractives sees, based on such a situation, this invention persons in the propolis extractives itself. Moreover, it improves water-dispersion [ of the propolis extractives at the time of using as a drink component ], without performing any processing. Moreover, the problem of the secondary precipitation of a drink component seen at the time of a mothball is solved certainly. Furthermore, the result of having repeated research wholeheartedly for the purpose of developing the new method of reducing the strong stimulus taste in the oral cavity, and improving the flavor. By using xanthan gum and an emulsifier together with propolis extractives, it finds out that the desired end can be attained and came to complete this invention.

[0013] This invention aims at offering the propolis extractives content drink which made it possible to improve water-dispersion [ the ] to a good thing in the propolis extractives itself, without performing any processing.

[0014] Moreover, conventionally, this invention solves certainly the problem of the secondary precipitation which occurs as an unescapable thing at the time of a mothball, and aims at offering the propolis extractives content drink which made it possible to enable it to be equal to a mothball.

[0015] Moreover, this invention reduces the strong stimulus taste peculiar to the propolis in the oral cavity, and aims at offering the propolis extractives content drink which made it possible to improve the flavor.

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## MEANS

[Means for Solving the Problem] This invention for attaining such a purpose consists of technical means of following (1) – (5).

(1) The propolis extractives content drink characterized by containing propolis extractives in stability.

[0017] (2) The propolis extractives content drink of the aforementioned (1) publication which makes propolis extractives extract solid content and contains them 0.001% of the weight or more.

[0018] (3) The propolis extractives content drink characterized by containing propolis extractives and xanthan gum.

[0019] (4) The propolis extractives content drink characterized by containing propolis extractives, xanthan gum, and an emulsifier.

[0020] (5) The above (3) which contains xanthan gum 0.005 to 0.08% of the weight, or a propolis extractives content drink given in (4).

[0021] Next, this invention is further explained to a detail. This invention relates to the propolis extractives content drink which contains propolis extractives in stability, and the propolis extractives content drink characterized by using xanthan gum and an emulsifier together in propolis extractives especially. What is equivalent to the extractives or it containing the active principle of the propolis obtained by performing extract or processing equivalent to this from the propolis extracted more commercially than the blow hole of a honeybee, or its prototype is meant as the propolis extractives as used in the field of [ here ] this invention, and if it is the usual propolis extractives, what is equivalent to it, or its prototype, regardless of the class, it can be used suitably.

[0022] Here, propolis is the aggregate of viscous gum, resin, and perfumed oil, by the honeybee, it is extracted from the bud and bark of a tree, is brought back to a bird box, and means other matter and the tarry material which mainly mixed yellow bees wax and a salivation object, and was made. Such propolis has pharmacological actions, such as an antibacterial action, virus multiplication depressant action, a local-anesthesia operation, anti-inflammatory activity, and an antioxidation operation, and the applications, such as fine arts and coating liquid for differentiation goods protection besides drugs, cosmetics, and an eating-and-drinking article, are various. The property of such propolis is inconvenient to use it for it, if it remains as it is in water since it is poorly soluble, and it cannot demonstrate the effectiveness enough, either. Then, the present condition is organic solvents', such as alcohol's, extracting propolis, obtaining a propolis extract generally, and used in the form of this extract, i.e., extractives.

[0023] Although what embellished not only the form of propolis extractives but the specific active principle in propolis in various forms is conventionally used as described above in this invention, propolis extractives to itself With the propolis extractives as used in the field of [ use in a form as it is and ] here therefore, without performing any processing Although described above, the extract which extracts propolis with the ethyl alcohol extract which extracts with ethyl alcohol and is obtained, or a food solvent equivalent to this, and is obtained especially is raised as a suitable thing.

[0024] On the other hand, the xanthan gum (Xanthan Gum) used in this invention is known at the northern United-States-Department-of-Agriculture lab in early the 1960s as natural macromolecule polysaccharide developed in the manufacture research process of a dextran. Namely, the microorganism cultured purely, Xanthomonas Polysaccharide will be generated by the fungus body cell membrane outer wall if capestris is fermented in the culture medium which used amylosis objects, such as grape sugar and a starch syrup, as the principal component. It is xanthan gum which carried out precipitation separation, and dried and ground this polysaccharide in alcohol.

[0025] The molecule of this xanthan gum consists of a mannose, a glucose, and potassium sodium calcium mixed salt of glucuronic acid, and that molecular weight is about 2 million. As a food additive, it is approved in every country in the world including the United States, and is raised with FAO/WHO to the direct additive by 10 or less mg/kg of charges of intake in FDA of the United States for permission one day at A (1) list. Moreover, it is recognized by natural additives also in Japan and independence specification is enacted in Japan Food Additives Association. This xanthan gum is used, in this invention, if it is xanthan gum, it can be used regardless of the class and a gestalt, but if it is the thing of not only this but this, and this effect, it can be used similarly.

[0026] In this invention, 0.01 – 0.03% of the weight of the range is desirable especially preferably 0.005 to 0.08% of the weight as a content of the xanthan gum concerned. When there is more effectiveness for not producing secondary precipitation when there are few contents of the xanthan gum concerned than 0.005 % of the weight unstably than 0.08 % of the weight, it is too high and unsuitable as a drink, and viscosity of a solution cannot attain the desired end and is not desirable.

[0027] Furthermore, in this invention, although the case where the emulsifier other than xanthan gum is used together is included, as an emulsifier in this case, it can perform independent or combining and using from inside of the emulsifier usually used, such as natural emulsifiers, such as well-known lecithin, propylene glycol fatty acid ester, a sorbitan fatty acid ester, a sucrose fatty acid ester, and a glycerine fatty acid ester. For example, when combining a sucrose fatty acid ester and other emulsifiers, it is suitable to use combining a sorbitan fatty acid ester and a glycerine fatty acid ester. As a glycerine fatty acid ester said here, the monoglyceride of organic acids, such as a monoglyceride, an acetic-acid monoglyceride, a lactic-acid monoglyceride, a citric-acid monoglyceride, a diacetyl tartaric-acid monoglyceride, an acetic acid and a tartaric-acid mixing monoglyceride, a tartaric-acid monoglyceride, and a succinic-acid monoglyceride, polyglycerol fatty acid ester, polyglycerin condensation RISHINOREN acid ester, etc. are raised.

[0028] In this invention, 0.03 – 0.3 % of the weight is desirable especially preferably 0.003 to 0.5% of the weight as a content of the emulsifier concerned. When there are few contents of the emulsifier concerned than 0.003 % of the weight, a combined effect cannot be expected, but the nasty smell of the emulsifier origin when [ than 0.5 % of the weight ] more occurs again, and it is not desirable in flavor.

[0029] Next, although these xanthan gum independence is used together in the above mentioned propolis extractives in this invention, an emulsifier is used together to this and a propolis extractives content drink is manufactured by making it contain With the propolis extractives content drink as used in the field of this invention If it is the liquid drink which contains the propolis extractives concerned in stability, what kind of thing may be used and especially the class is not limited, but if it is illustrated For example, a nourishment strong drink, a soft drink, juice, a fermented milk drink, a carbonated drink, an alcoholic beverage, a tea drink, etc. are raised as a suitable thing.

[0030] Next, the manufacture approach of the propolis extractives content drink of this invention is explained. As propolis extractives used by this invention, although it can be used as it is, commercial thing (product made from API), for example, ROYA ruby pro etc., etc., it is also possible suitably to extract and prepare propolis extractives by ethanol from the propolis extracted as follows more commercially than the blow hole of a honeybee. That is, it faces enforcing the manufacturing method of this invention, propolis is added to the ethyl alcohol of the amount which is sufficient for propolis fully being immersed first, and heating stirring is carried out under reduced pressure or ordinary pressure. In this case, more than the amount of 2 double of propolis of the amount of ethyl alcohol (weight) is desirable. Heating is 40-80 degrees C preferably under ordinary pressure, and the water-soluble useful component of propolis is extracted by ethyl alcohol by stirring gently at the temperature of this range for 30 minutes to 2 hours. Padding of propolis is large, or since an extract takes a long time in being very hard, extract time amount can be shortened by carrying out the spray of the ethyl alcohol to padding of propolis, carrying out sealing neglect for several hours, and making padding soft.

[0031] Thus, the propolis extractives used by this invention are obtained by extracting the fusibility component of propolis with a conventional method using ethyl alcohol, and separating the ethyl alcohol which contains the fusibility component concerned as occasion demands from an insoluble component. The propolis extractives content drink of this invention makes the propolis extractives concerned extract solid content, and contains them 0.001% of the weight or more. Although it was difficult to manufacture conventionally the drink which contains 0.001% of the weight or more of hydrophobic propolis extractives in stability, this invention makes it possible to offer the propolis extractives content drink which contains the propolis extractives concerned 0.001% of the weight or more, and contains this in stability.

[0032] On the other hand, to the propolis extractives concerned, xanthan gum is added so that the content in a drink may become 0.005 - 0.08% of the weight. Namely, dissolve xanthan gum in water with a proper drink constituent, and said propolis extractives are added to this. After being filled up with what added water and was further made into the whole quantity after fully stirring and mixing and making it homogeneity into containers, such as a glass bottle, a plastics cup, a container made of paper, and a can container, 90 degrees C and low-temperature heat sterilization processing of a 10-second about room can be performed, and a final product can be prepared. Although much more remarkable effectiveness will be acquired if an emulsifier is further used together in this case, the approach of adding an emulsifier in propolis extractives and adding this to the drink constituent containing said xanthan gum in this case, is raised as a suitable thing. However, it is possible suitably not only this but to add the emulsifier concerned with xanthan gum in the \*\*\* aforementioned drink constituent.

[0033] In this invention, although based on containing the above-mentioned propolis extractives and xanthan gum, and an emulsifier in a drink, a proper drink component can be further added to this if needed. In this case, as a component which constitutes a drink constituent, proper components, such as saccharides, such as purification honey, anhydrous citric acid, the charge of pH adjustment, sucrose, grape sugar, a sorbitol, a maltose, fructose, invert sugar, and a starch syrup, polysaccharide, an acidulant, a seasoning, a flavoring, a synthetic sweetner, a vegetable fiber, vegetable extractives, animal extractives, a mineral, vitamins, a coloring agent, a preservative, and perfume, can be added additionally. In addition, it is desirable to adjust pH of a drink constituent to 3.6-7.0 in this case.

[0034] The propolis extractives content drink of this invention manufactured as mentioned above It is what is characterized by making propolis extractives contain the xanthan gum independence or the xanthan gum, and the emulsifier of said amount of specification. By this While making it possible to improve water-dispersion [ which was made into the trouble in the case of using propolis conventionally ] to a good thing, without performing any processing to the propolis extractives itself The secondary precipitation of a drink component seen at the time of a mothball is decreased certainly, and it makes it possible to make good notably the flavor of reduction-ized Perilla frutescens (L.) Britton var. crispa (Thunb.) Decne. for the strong stimulus taste still more peculiar to the propolis in the oral cavity. It is the form where such an active principle of propolis was employed efficiently as it was, and there is no example which was reported until now according to the place where this invention persons learn the approach of reduction-izing certainly the stimulus taste in the oral cavity peculiar to propolis while making it possible to raise the availability, and it can be said that it is the new knowledge found out for the first time by this invention persons. In addition, the propolis content drink which contains the propolis extractives of this invention in stability is included by the range of the propolis content drink of this invention as long as it has the equivalent property similarly manufactured using the thing of not only the above-mentioned xanthan gum but the it and this effect.

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## EXAMPLE

[Example] Next, although an example is shown and this invention is explained still more concretely, this invention is not limited to the example concerned.

Propolis extractives (20% [ of extract solid content ], ethanol 80%) 0.5ml from Brazil was added after dissolving example 1 – 31 method-of-preparation xanthan gum ("SANESU E-S", San-Ei Gen F.F.I., Inc. make) 0.005g, 15.0g of purification honey, and 0.05g of anhydrous citric acid in 90g of water, stirring mixing was fully carried out, water was added further and the whole quantity was set to 100ml. This was made into the preservation sample (example 1) for 90 degrees C and 10 seconds and after heating.

Moreover, similarly, the xanthan gum [ 0.01g (example 2) and 0.02g (example 3) ] ("SANESU E-S", San-Ei Gen F.F.I., Inc. make) system was also prepared, and it considered as the preservation sample.

[0036] Moreover, as an example of contrast, propolis extractives (20% [ of extract solid content ], ethanol 80%) 0.5ml from Brazil was added after dissolving 15.0g of purification honey, and 0.05g of anhydrous citric acid in 90g of water, stirring mixing was fully carried out, water was added further and the whole quantity was set to 100ml. This was made into the preservation sample for 90 degrees C and 10 seconds and after heating.

[0037] 2) The evaluation trial was carried out about each item of a dissolution condition, the secondary-about each sample prepared with the evaluation test above 1 precipitation at the time of preservation, and flavor. In this case, it evaluated about the precipitation condition at the time of saving for two weeks by 37 degrees C of preservation for two weeks at 5 degrees C of preservation about the secondary precipitation at the time of preservation. The organoleptics of five panels performed flavor again by evaluation of each item observing the appearance with a conventional method, and evaluating it about a dissolution condition and the precipitation condition at the time of preservation.

[0038] 3) The result of the evaluation trial beyond a result is shown in Table 1. In addition, in Table 1, it shows that the amount increases, so that the precipitation in the massive object deposit in a dissolution condition and preservation has (much +). The stimulus taste in flavor is organic-functions evaluation of five panels, shows the degree of the stimulus taste in the oral cavity, and it shows that the strength is increased, so that there is (much +). It was checked by adding xanthan gum that the effectiveness which suppresses a deposit of the massive object at the time of the dissolution, and improves water-dispersion [ the ], and controls separation of the component under preservation and precipitation is acquired as the examples 1-3 of Table 1 saw the above result. Furthermore, it was checked that the strong stimulus taste in the oral cavity peculiar to propolis is also reduced notably, and can improve the flavor. On the other hand, in the case of the example of a comparison which does not contain xanthan gum, such effectiveness was not able to be acquired.

[0039]

[Table 1]

表1 各製品の評価試験結果

	対照例	実施例1	実施例2	実施例3
处方 (100ml当たり)				
プロポリスエキス	0.5 ml	0.5 ml	0.5 ml	0.5 ml
キサンタンガム	—	0.005 g	0.01 g	0.02 g
蜂蜜	15.0 g	15.0 g	15.0 g	15.0 g
無水クエン酸	0.05 g	0.05 g	0.05 g	0.05 g
pH	2.96	2.96	2.98	3.00
Bx	11.8	11.8	11.8	11.8
溶解状態	塊状物析出 +++	塊状物析出 ++	塊状物析出 +	塊状物析出 +
風味	刺激味 +++	刺激味 ++	刺激味 +	刺激味 +
保存 5°C 2週	上部清澄化 沈殿分離	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿+
保存 37°C 2週	完全清澄化 沈殿分離	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿+

+++～+：塊状物析出、刺激味、沈殿の量的な多少の程度を示す。

[0040] The liquid which dissolved 0.05g (HLB15) of sucrose fatty acids ester was added to propolis extractives (20% [ of extract solid content ], ethanol 80%) 0.5ml from Brazil after dissolving example 4 - 61 method-of-preparation xanthan gum ("SANESU E-S", San-Ei Gen F.F.I., Inc. make) 0.005g, 30.0g of purification honey, and 0.05g of anhydrous citric acid in 90g of water, stirring mixing was fully carried out, water was added further and the whole quantity was set to 100ml. This was made into the preservation sample (example 4) for 90 degrees C and 10 seconds and after heating. Moreover, similarly, the xanthan gum [ 0.01g (example 5) and 0.02g (example 6) ] ("SANESU E-S", San-Ei Gen F.F.I., Inc. make) system was also prepared, and it considered as the preservation sample.

[0041] Moreover, the liquid which dissolved 0.05g (HLB15) of sucrose fatty acids ester was added to propolis extractives (20% [ of extract solid content ], ethanol 80%) 0.5ml from Brazil as an example of contrast after dissolving 30.0g of purification honey, and 0.05g of anhydrous citric acid in 90g of water, stirring mixing was fully carried out, and this was made into the preservation sample for 90 degrees C and 10 seconds and after heating.

[0042] 2) The evaluation trial was carried out about each item of a dissolution condition, the secondary-about each sample prepared with the evaluation test above 1 precipitation at the time of preservation, and flavor. In this case, it evaluated about the precipitation condition at the time of saving for two weeks by 37 degrees C of preservation for two weeks at 5 degrees C of preservation about the secondary precipitation at the time of preservation. The organoleptics of five panels performed flavor again by evaluation of each item observing the appearance with a conventional method, and evaluating it about a dissolution condition and the precipitation condition at the time of preservation.

[0043] 3) The result of the evaluation trial beyond a result is shown in Table 2. In addition, in Table 2, it shows that the amount increases, so that the precipitation in preservation has (much +). The stimulus taste in flavor is organic-functions evaluation of five panels, shows the degree of the stimulus taste in the oral cavity, and it shows that the strength is increased, so that there is (much +). Although it was checked by adding an emulsifier that a deposit of the massive object at the time of the dissolution can be suppressed as it saw at the above result, it decreased primary precipitation that it will be found out that that solubility increases further and it will raise Bx if a deposit of the massive object at the time of melting raises Bx (Brix) in this case, and it

turned out that it is effective in keeping a dissolution condition good. Furthermore, it was checked by using xanthan gum together that secondary precipitation of the component under preservation can be decreased certainly, and the stimulus taste in the oral cavity can be notably reduced also in flavor, and the flavor can be improved. On the other hand, in the case of the example of a comparison which does not contain xanthan gum, such effectiveness was not able to be acquired. In addition, when the class of emulsifier was changed and having been examined similarly, the almost same result was obtained.

[0044]

[Table 2]

表2 各製品の評価試験結果

	対照例	実施例4	実施例5	実施例6
处方 (100ml当たり)				
プロポリスエキス	0.5 ml	0.5 ml	0.5 ml	0.5 ml
蔗糖脂肪酸エステル	0.05 g	0.05 g	0.05 g	0.05 g
キサンタンガム	—	0.005 g	0.01 g	0.02 g
蜂蜜	30.0 g	30.0 g	30.0 g	30.0 g
無水クエン酸	0.05 g	0.05 g	0.05 g	0.05 g
pH	2.96	2.96	2.98	3.00
Bx	23.5	23.5	23.5	23.5
溶解状態	塊状物析出 無し	塊状物析出 無し	塊状物析出 無し	塊状物析出 無し
風味	刺激味 ++	刺激味 ++	刺激味 +	刺激味 +
保存 5℃ 2週	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿+	乳濁 沈殿+
保存 37℃ 2週	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿+	乳濁 沈殿+

++～±：塊状物析出、刺激味、沈殿の量的な多少の程度を示す。

[Translation done.]

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(54)【発明の名称】プロポリスエキス含有飲料

## (57)【要約】

【目的】 プロポリスエキスを安定に含有するプロポリス含有飲料を提供する。

【構成】 プロポリスエキス、及びキサンタンガム0.005~0.08重量%、更に必要により乳化剤を含有するプロポリスエキス含有飲料。

【効果】 プロポリスエキス自体には、何らの処理を施すことなく、その水分散性を良好なものに改善することができる。また、従来、長期保存した際にみられる二次沈澱を確実に減少させて、飲料として長期保存に耐える製品を簡便に製造することができる。更に、口腔内におけるプロポリスに特有の強い刺激味を顕著に低減させて、その食味を良好なものに改善することができる。

## 【特許請求の範囲】

【請求項1】プロポリスエキスを安定に含有することを特徴とするプロポリスエキス含有飲料。

【請求項2】プロポリスエキスを抽出固形分として0.001重量%以上含有する請求項1記載のプロポリスエキス含有飲料。

【請求項3】プロポリスエキス及びキサンタンガムを含有することを特徴とするプロポリスエキス含有飲料。

【請求項4】プロポリスエキス、キサンタンガム及び乳化剤を含有することを特徴とするプロポリスエキス含有飲料。

【請求項5】キサンタンガムを0.005～0.08重量%含有する請求項3又は請求項4記載のプロポリスエキス含有飲料。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】本発明は、天然物抽出成分のプロポリスエキスを安定に含有するプロポリスエキス含有飲料に関するものであり、更に詳しくは、従来、プロポリスエキスを利用した場合の問題点とされていた水分散性を改善し、また、長期間保存中にみられる二次沈澱を確実に減少させ、更に、プロポリスに特有の口腔内における強い刺激味を顕著に低減させてその食味を改善することを可能にする新規なプロポリスエキス含有飲料に関するものである。

## 【0002】

【従来の技術】プロポリスは、蜜蜂が巣箱内に貯蔵する樹脂状物質であり、これには、樹脂、ミツロウ、精油、花粉、フラボノイド等の種々の成分が含まれており、古くから民間療法薬として利用されてきたものである。従来、このようなプロポリスを利用する場合、種々の利用形態が考えられているが、一般的には、プロポリスエキスの形で利用されている。すなわち、プロポリスは、いわゆる塊状物であり、また、その主成分は疎水性物質であることから、通常、エタノールなどの親水性有機溶媒の高濃度溶液により抽出して得られる液状のプロポリスエキスとして利用されているのが一般的である。

【0003】ところで、プロポリスエキスの主成分であるところの疎水性物質は、プロポリスの中心的薬効成分のフラボン類アグリコンであることが知られている。従来、このようなプロポリスエキスに含まれる薬効成分に着目し、これを飲料成分等として利用する試みが種々行われているが、プロポリスエキスは、水で希釈するとエキスに含まれる親水性有機溶媒に可溶のプロポリス成分が不均一に析出し、凝集又は塊状化することから、これを希釈して飲料化することは、技術的にかなり困難であった。

【0004】また、経口摂取に際し、プロポリスエキスの高濃度溶液及び可溶成分が口腔粘膜を刺激するだけではなく、摂取後にプロポリスエキスが唾液で希釈され、水

で希釈した場合と同様に可溶成分が析出し、口腔内においてべたつきを生じて不快感を与えるなど、食味の点においても飲料化になじまない面があった。

【0005】従って、プロポリスの有効成分を充分に利用した形で飲料化する際には、その有効成分を除去することなく水分散性を良くすることが必要となること、更に、飲料としてその物性を安定に保った形で長期保存に耐えるように、飲料成分が二次沈澱することをも確実に減少もしくは防止しなければならないこと、同時にプロポリスに特有の口腔内における強い刺激味を確実に低減させて食味の点においても改善を図ることが必要となること、などの技術的な問題を総合的にクリアーすることが必要とされていた。

【0006】かかる状況下にあって、従来、このようなプロポリスの利用のネックとなっている各種の問題を解決するための種々の試みが行われており、これまでにプロポリスエキスの新しい利用技術が種々提案されている。その代表的なものを例示すると、例えば、プロポリスの水溶性有機溶剤抽出液を脱口ウ処理した後、水溶性賦形剤により抗菌活性成分を晶析・固形化せしめ、次いで乳化剤及び抗酸化剤を添加して乾燥することを特徴とする水分散性プロポリス含有製剤の製造法（特開昭61-197523号公報）、が提案されている。しかしながら、この方法は、抗菌活性の高い水分散性プロポリス含有製剤を製造することを目的とするものであり、飲料成分として使用するものではないことから、食味の点については何らの言及もなされていない。

【0007】また、水分散性良好なプロポリス成分含有固状物とその製造方法として、親水性有機溶媒可溶プロポリス成分含有水溶液を、無水糖質及びシクロデキストリンから選ばれる1種以上の糖質に含有せしめて脱水し、固状物にすることを特徴とするプロポリス成分含有固状物の製造方法（特開平4-316459号公報）、が提案されている。

【0008】また、水溶性プロポリス製剤の製造法として、プロポリスエキス中のフラボノイドであるフラボン類アグリコンを糖転移酵素を用いて水溶性の高いα-グルコシルフラボン類と共に、これを飲食物、抗感受性疾患剤、化粧品等に使用する方法（特開平4-312597号公報）、が提案されている。しかしながら、フラボン類アグリコンは、プロポリス中のフラボノイドの一部の成分に過ぎず、当該フラボン類アグリコンのみを取り出しても当然のことながらプロポリスエキスとはその成分構成が全く異なるものであり、また、糖転移したフラボン類アグリコンは、天然物であるプロポリスエキスとはその位置づけがはっきり異なるものであることから、当該方法は、プロポリスエキスそのものの利用技術とは異なるものである。

【0009】また、プロポリスの一価アルコール抽出液を利用したプロポリス食品組成物及びその製造方法とし

て、プロポリスの一価アルコール抽出液又は該一価アルコール抽出液から得られた一価アルコール可溶プロポリス成分を、ポリオール・脂肪酸エステル系界面活性剤が均一溶解もしくは安定分散された、水素結合し得る複数個のOH基含有媒体中に存在させて、混合攪拌する工程を含むことを特徴とするプロポリス食品組成物の製造方法（特公平4-66544号公報）、が提案されている。しかしながら、この方法は、一価アルコール抽出液から得られるプロポリスエキス中のアルコールを除去し、乳化剤で乳化することに特徴を有するものであるが、製造工程がやや煩雑で、いわばきわめて特殊なものと云えるものであった。

【0010】また、水溶性プロポリス製剤の製造方法として、例えば、プロポリスをグリセリンに加え、95～160℃に加熱攪拌し、熱時に不溶物を除去することを特徴とする水溶性プロポリス製剤の製造法（特開平5-957号公報）、が提案されている。かかる方法により得られるプロポリス製剤は、プロポリスエキスのグリセリン抽出物からなるものであり、水によく溶け、不溶物を含まないので、医薬、化粧料等に好適に利用されるが、本来、プロポリスエキスの主たる有効成分はエタノールエキスとして含まれるものであることを考慮すると、グリセリン抽出物は、その抽出成分の組成が本来のものとかなり違うものであり、当該方法は、いわゆるプロポリスエキスの利用技術とは異なるものと思われる。

【0011】このように、従来、プロポリス成分を利用する試みが種々行われているものの、いわゆるプロポリスエキス自体をそのままの形で使用し得ると共に、飲料成分としてプロポリスエキスの有効成分をその優れた特性を充分に生かした形で使用するプロポリスエキスの利用技術については、これまでにほとんど提案されておらず、特に、従来、プロポリスを飲料成分として利用した場合の問題点とされていた水分散性を改善し、また、長期保存した場合にみられる飲料成分の二次沈澱を確実に減少もしくは防止し、更に、プロポリスに特有の口腔内における強い刺激味を確実に低減させてその食味を改善することが可能な新しいプロポリスエキスの利用技術を開発することが当業界において強く要請されている状況にあった。

【0012】

【発明が解決しようとする課題】このような状況を踏まえ、本発明者らは、従来のプロポリスエキスの利用技術にみられる各種問題点を確実に解消し得ると共に、プロポリスエキス自体には、何らの処理を施すことなく、しかも、飲料成分として利用した場合のプロポリスエキスの水分散性を改善し、また、長期保存時にみられる飲料成分の二次沈澱の問題を確実に解決し、更に口腔内における強い刺激味を低減させてその食味を改善し得る新しい方法を開発することを目標として鋭意研究を積み重ねた結果、プロポリスエキスと共にキサンタンガム、乳化

剤を併用することにより所期の目的を達成し得ることを見い出し、本発明を完成するに至った。

【0013】本発明は、プロポリスエキス自体には、何らの処理を施すことなく、その分散性を良好なものに改善することを可能にしたプロポリスエキス含有飲料を提供することを目的とするものである。

【0014】また、本発明は、従来、長期保存時に不可避的なものとして生起する二次沈澱の問題を確実に解決し、長期保存に耐え得るようにすることを可能にしたプロポリスエキス含有飲料を提供することを目的とするものである。

【0015】また、本発明は、口腔内におけるプロポリスに特有の強い刺激味を低減させて、その食味を改良することを可能にしたプロポリスエキス含有飲料を提供することを目的とするものである。

【0016】

【課題を解決するための手段】このような目的を達成するための本発明は、次の（1）～（5）の技術的手段から構成されるものである。

（1）プロポリスエキスを安定に含有することを特徴とするプロポリスエキス含有飲料。

【0017】（2）プロポリスエキスを抽出固形分として0.001重量%以上含有する前記（1）記載のプロポリスエキス含有飲料。

【0018】（3）プロポリスエキス及びキサンタンガムを含有することを特徴とするプロポリスエキス含有飲料。

【0019】（4）プロポリスエキス、キサンタンガム及び乳化剤を含有することを特徴とするプロポリスエキス含有飲料。

【0020】（5）キサンタンガムを0.005～0.08重量%含有する前記（3）又は（4）記載のプロポリスエキス含有飲料。

【0021】次に、本発明について、更に詳細に説明する。本発明は、プロポリスエキスを安定に含有するプロポリスエキス含有飲料、特に、プロポリスエキスに、キサンタンガム、乳化剤を併用することを特徴とするプロポリスエキス含有飲料に係るものである。ここで、本発明で云うところのプロポリスエキスとは、蜜蜂の巣より

商業的に採取されたプロポリスより抽出又はこれと同等の処理を施して得られるプロポリスの有効成分を含有するエキス又はそれと同等のものあるいはその類似物を意味するものであり、通常のプロポリスエキス又はそれと同等のものあるいはその類似物であればその種類を問わず適宜使用することができる。

【0022】ここで、プロポリスとは、粘性のゴム質、樹脂及び香油の集合体であって、蜜蜂によって樹木のつぼみや樹皮から採取され、巣箱に持ち帰られ、他の物質、主としてミツロウ及び唾液分泌物と混ぜ合わせて作られたタール状物質を意味するものである。このような

プロポリスは、抗菌作用、ウイルス増殖抑制作用、局所麻酔作用、抗炎症作用、抗酸化作用等の薬理作用を有し、医薬品、化粧品、飲食品の他、美術・分化財保護用塗料液等その用途は多岐にわたっている。このようなプロポリスは、その性質が、水に難溶性であるために、そのままでは使用するのに不便であり、またその効果も十分發揮することができない。そこで、一般に、プロポリスをアルコール等の有機溶剤で抽出してプロポリス抽出物を得て、かかる抽出物、すなわちエキスの形で使用されているのが現状である。

【0023】前記したように、従来、プロポリスエキスの形のみならず、プロポリス中の特定の有効成分を種々の形に修飾したものなどが使用されているが、本発明では、プロポリスエキスは、それ自体には、何らの処理を施すことなく、そのままの形で使用するものであり、従って、ここで云うところのプロポリスエキスとは、前記したものの中でもプロポリスをエチルアルコールで抽出して得られるエチルアルコール抽出物、もしくは、これと同等の食品溶剤で抽出して得られる抽出物等が好適なものとしてあげられる。

【0024】一方、本発明において使用するキサンタンガム (Xanthan Gum) は、1960年代初期にアメリカ農務省北部研究所において、デキストランの製造研究過程で開発された天然の高分子多糖類として知られているものである。すなわち、純粋培養した微生物、*Xanthomonas campestris* をブドウ糖、水飴などの澱粉分解物を主成分とした培地で醸酵させると、菌体細胞膜外壁に多糖類が生成される。この多糖類をアルコールで沈澱分離し、乾燥、粉碎したものがキサンタンガムである。

【0025】このキサンタンガムの分子は、マンノース、グルコース、及びグルクロン酸のカリウム・ナトリウム・カルシウム混合塩で構成され、その分子量は、約200万である。食品添加物としては、アメリカをはじめ世界各国で認可され、アメリカのFDAにおいては直接添加物に、FAO/WHOでは許容1日摂取量10mg/kg以下でA(1)リストにあげられている。また、日本においても天然添加物に認定され、日本食品添加物協会で自主規格が制定されている。本発明では、かかるキサンタンガムを使用するものであり、キサンタンガムであれば、その種類、形態を問わず使用することができるが、これに限らず、これと同効のものであれば同様に使用することができる。

【0026】本発明において、当該キサンタンガムの含有量としては、0.005~0.08重量%、特に好ましくは、0.01~0.03重量%の範囲が望ましい。当該キサンタンガムの含有量が0.005重量%よりも少ない場合には、二次沈澱を生じさせないための効果が不安定であり、また、0.08重量%よりも多い場合には、溶液の粘度が高すぎて飲料としては不適であり、所

期の目的を達成することができず、好ましくない。

【0027】更に、本発明においては、キサンタンガムの他に乳化剤を併用する場合が含まれるが、かかる場合の乳化剤としては、公知のレシチン等の天然乳化剤、プロピレングリコール脂肪酸エステル、ソルビタン脂肪酸エステル、蔗糖脂肪酸エステル及びグリセリン脂肪酸エステル等の通常使用されている乳化剤の内より単独もしくは組み合わせて用いることができる。例えば、蔗糖脂肪酸エステルと他の乳化剤を組み合わせる場合には、ソルビタン脂肪酸エステル及びグリセリン脂肪酸エステルを組み合わせて用いることが好適である。ここに云うグリセリン脂肪酸エステルとしては、モノグリセリド、酢酸モノグリセリド、乳酸モノグリセリド、クエン酸モノグリセリド、ジアセチル酒石酸モノグリセリド、酢酸・酒石酸混合モノグリセリド、酒石酸モノグリセリド、コハク酸モノグリセリド等の有機酸のモノグリセリド、ポリグリセリン脂肪酸エステル、ポリグリセリン縮合リシノレン酸エステル等があげられる。

【0028】本発明において、当該乳化剤の含有量として、0.003~0.5重量%、特に好ましくは、0.03~0.3重量%が望ましい。当該乳化剤の含有量が、0.003重量%よりも少ない場合には、併用効果が期待できずまた、0.5重量%よりも多い場合には、乳化剤由来の異臭が発生し風味的に好ましくない。

【0029】次に、本発明においては、前記したプロポリスエキスにこれらのキサンタンガム単独、もしくはこれに乳化剤を併用して含有せしめることによりプロポリスエキス含有飲料が製造されるが、本発明で云うところのプロポリスエキス含有飲料とは、当該プロポリスエキスを安定に含有する液体飲料であれば如何なるものでも良く、その種類は特に限定されるものではないが、それを例示すれば、例えば、滋養強壮飲料、清涼飲料、ジュース、発酵乳飲料、炭酸飲料、アルコール飲料、茶飲料等が好適なものとしてあげられる。

【0030】次に、本発明のプロポリスエキス含有飲料の製造方法について説明する。本発明で使用するプロポリスエキスとしては、市販のもの、例えば、ローヤルビープロ（アビ社製）等をそのまま使用することができるが、次のように、蜜蜂の巣より商業的に採取されたプロポリスよりプロポリスエキスをエタノールで抽出して調製することも適宜可能である。すなわち、本発明の製造法を実施するに際しては、先ずプロポリスを十分に浸漬するに足りる量のエチルアルコールにプロポリスを加えて減圧又は常圧下に加熱攪拌する。この場合、エチルアルコールの量はプロポリスの2倍量（重量）以上が好ましい。加熱は、常圧下で、好ましくは40~80℃であり、この範囲の温度で30分~2時間ゆるやかに攪拌することによりプロポリスの水溶性の有用成分がエチルアルコールに抽出される。プロポリスの塊りが大きいあるいは非常に固い場合には抽出に長時間を要するので、

エチルアルコールをプロポリスの塊りにスプレーし、数時間密閉放置して塊りを柔らかくすることにより抽出時間を短縮することができる。

【0031】このようにして、エチルアルコールを用いて常法によりプロポリスの可溶性成分を抽出し、必要により当該可溶性成分を含有するエチルアルコールを不溶性成分から分離することにより、本発明で使用するところのプロポリスエキスが得られる。本発明のプロポリスエキス含有飲料は、当該プロポリスエキスを抽出固形分として0.001重量%以上含有する。従来、0.001重量%以上の疎水性のプロポリスエキスを安定に含有する飲料を製造することは困難であったにもかかわらず、本発明は、当該プロポリスエキスを0.001重量%以上含有し、かつこれを安定に含有するプロポリスエキス含有飲料を提供することを可能とするものである。

【0032】一方、当該プロポリスエキスに対して、キサンタンガムを、飲料中の含有量が0.005~0.08重量%になるように添加する。すなわち、キサンタンガムを適宜の飲料組成物と共に水に溶解し、これに前記プロポリスエキスを添加し、十分に攪拌、混合し、均質にした後、更に、水を加えて全量としたものを、例えば、ガラス瓶、プラスチックカップ、紙製容器、缶容器等の容器中に充填した後、例えば、90℃、10秒間程度の低温加熱殺菌処理を施して、最終製品を調製することができる。かかる際に、更に乳化剤を併用すると一層顕著な効果が得られるが、この場合には、プロポリスエキスに乳化剤を添加し、これを前記キサンタンガムを含む飲料組成物に添加する方法が好適なものとしてあげられる。しかしながら、これに限らず、当該乳化剤をはじめ前記飲料組成物中にキサンタンガムと共に添加しておくことも適宜可能である。

【0033】本発明においては、飲料中に上記プロポリスエキス及びキサンタンガム、乳化剤を含有することを基本とするものであるが、これに更に必要に応じて適宜の飲料成分を付加することができる。かかる場合、飲料組成物を構成する成分としては、精製蜂蜜、無水クエン酸、pH調整料、蔗糖、ブドウ糖、ソルビトール、マルトース、フラクトース、転化糖、水飴等の糖類、多糖類、酸味料、調味料、香味料、合成甘味料、植物繊維、植物エキス、動物エキス、ミネラル、ビタミン類、着色料、保存剤、香料等適宜の成分を付加的に加えることができる。尚、この場合、飲料組成物のpHは、3.6~7.0に調整することが好ましい。

【0034】以上のようにして製造される本発明のプロポリスエキス含有飲料は、プロポリスエキスに、前記特定量のキサンタンガム単独、もしくはキサンタンガム及び乳化剤を含有させることを特徴とするものであり、これによって、プロポリスエキス自体には、何らの処理を施すことなく、従来、プロポリスを利用する場合の問題点とされていた水分散性を良好なものに改善することを

可能にすると共に、長期保存時にみられる飲料成分の二次沈澱を確実に減少させ、更には、口腔内におけるプロポリスに特有の強い刺激味を顕著に低減化しその食味を良好なものとすることを可能にするものである。このような、プロポリスの有効成分をそのまま生かした形で、かつその利用性を高めることを可能にすると共に、プロポリスに特有の口腔内における刺激味を確実に低減化する方法は、本発明者らの知るところによればこれまで報告された例はなく、本発明者らによってはじめて見い出された新規な知見であると云える。尚、本発明のプロポリスエキスを安定に含有するプロポリス含有飲料は、上記キサンタンガムに限らず、それと同効のものを用いて同様に製造される同等の特性を有するものである限り、本発明のプロポリス含有飲料の範囲に包含されるものである。

### 【0035】

【実施例】次に、実施例を示して、本発明を更に具体的に説明するが、本発明は、当該実施例に限定されるものではない。

#### 20 実施例 1~3

##### 1) 調製法

キサンタンガム（『サンエースE-S』、三栄源エフ・エフ・アイ社製）0.005g、精製蜂蜜15.0g及び無水クエン酸0.05gを水90gに溶解後、ブラジル産プロポリスエキス（抽出固形分20%・エタノール80%）0.5mlを添加し、十分に攪拌混合し、更に水を加え全量を100mlとした。これを、90℃、10秒間、加熱後、保存サンプル（実施例1）とした。また、同様に、キサンタンガム（『サンエースE-S』、

30 三栄源エフ・エフ・アイ社製）0.01g（実施例2）、0.02g（実施例3）の系も調製し、保存サンプルとした。

【0036】また、対照例として、精製蜂蜜15.0g及び無水クエン酸0.05gを水90gに溶解後、ブラジル産プロポリスエキス（抽出固形分20%・エタノール80%）0.5mlを添加し、十分に攪拌混合し、更に水を加え全量を100mlとした。これを、90℃、10秒間、加熱後、保存サンプルとした。

##### 【0037】2) 評価試験

40 前記1)により調製した各サンプルについて、溶解状態、保存時における二次沈澱、風味の各項目について評価試験を実施した。この場合、保存時における二次沈澱については、保存5℃で2週間、保存37℃で2週間保存した場合における沈澱状態について評価した。各項目の評価は、溶解状態、保存時における沈澱状態については、常法によりその外観を観察し評価することにより、また、風味は、パネル5人の官能試験により行った。

##### 【0038】3) 結果

以上の評価試験の結果を表1に示す。尚、表1において、溶解状態における塊状物析出と保存における沈澱

は、(+)が多いほど、その量が多くなることを示す。風味における刺激味は、パネル5人の官能評価であつて、口腔内の刺激味の度合いを示すものであり、(+)が多いほど、その強さを増すことを示す。以上の結果、表1の実施例1～3に見られる通り、キサンタンガムを添加することにより、溶解時の塊状物の析出を抑えてその分散性を改善し、また、保存中の成分の分離、沈澱

を抑制する効果が得られることが確認された。更に、プロポリス特有の口腔内における強い刺激味も頭著に低減されてその食味を改善し得ることが確認された。これに對して、キサンタンガムを含有していない比較例の場合には、そのような効果を得ることができなかつた。

【0039】

【表1】

表1 各製品の評価試験結果

	対照例	実施例1	実施例2	実施例3
处方 (100ml当たり)				
プロポリスエキス	0.5 ml	0.5 ml	0.5 ml	0.5 ml
キサンタンガム	—	0.005 g	0.01 g	0.02 g
蜂蜜	15.0 g	15.0 g	15.0 g	15.0 g
無水クエン酸	0.05 g	0.05 g	0.05 g	0.05 g
pH	2.96	2.96	2.98	3.00
Bx	11.8	11.8	11.8	11.8
溶解状態	塊状物析出 +++	塊状物析出 ++	塊状物析出 +	塊状物析出 +
風味	刺激味 +++	刺激味 ++	刺激味 +	刺激味 +
保存 5°C 2週	上部清澄化 沈澱分離	乳濁 沈澱++	乳濁 沈澱+	乳濁 沈澱+
保存 37°C 2週	完全清澄化 沈澱分離	乳濁 沈澱++	乳濁 沈澱+	乳濁 沈澱+

+++～+：塊状物析出、刺激味、沈澱の量的な多少の程度を示す。

【0040】実施例4～6

1) 調製法

キサンタンガム（『サンエースE-S』、三栄源エフ・エフ・アイ社製）0.005g、精製蜂蜜30.0g及び無水クエン酸0.05gを水90gに溶解後、ラジル産プロポリスエキス（抽出固形分20%・エタノール80%）0.5mlに蔗糖脂肪酸エステル（HLB 1.5）0.05gを溶解した液を加え、十分に攪拌混合し、更に水を加え全量を100mlとした。これを、950

0°C、10秒間、加熱後、保存サンプル（実施例4）とした。また、同様に、キサンタンガム（『サンエースE-S』、三栄源エフ・エフ・アイ社製）0.01g（実施例5）、0.02g（実施例6）の系も調製し、保存サンプルとした。

【0041】また、対照例として、精製蜂蜜30.0g及び無水クエン酸0.05gを水90gに溶解後、ラジル産プロポリスエキス（抽出固形分20%・エタノール80%）0.5mlに蔗糖脂肪酸エステル（HLB 1.5）0.05gを溶解した液を加え、十分に攪拌混合し、更に水を加え全量を100mlとした。これを、950

5) 0.05 g を溶解した液を加え、十分に攪拌混合し、これを、90℃、10秒間、加熱後、保存サンプルとした。

【0042】2) 評価試験

前記1)により調製した各サンプルについて、溶解状態、保存時における二次沈殿、風味の各項目について評価試験を実施した。この場合、保存時における二次沈殿については、保存5℃で2週間、保存37℃で2週間保存した場合における沈殿状態について評価した。各項目の評価は、溶解状態、保存時における沈殿状態については、常法によりその外観を観察し評価することにより、また、風味は、パネル5人の官能試験により行った。

【0043】3) 結果

以上の評価試験の結果を表2に示す。尚、表2において、保存における沈殿は、(+)が多いほど、その量が多くなることを示す。風味における刺激味は、パネル5人の官能評価であって、口腔内の刺激味の度合いを示

すものであり、(+)が多いほど、その強さを増すことを示す。以上の結果に見られる通り、乳化剤を添加することにより、溶解時の塊状物の析出は抑えることができることが確認されたが、この場合、溶融時の塊状物の析出は、Bx(ブリックス)を高めるとその溶解性は更に増加することが見い出され、Bxを高めることは、一次沈殿を減少させ、溶解状態を良好に保つのに有効であることが分った。更に、キサンタンガムを併用することにより、保存中の成分の二次沈殿を確実に減少させることができ、また、風味的にも口腔内の刺激味を顯著に低減させてその食味を改善することができる事が確認された。これに対して、キサンタンガムを含有していない比較例の場合には、そのような効果を得ることができなかった。尚、乳化剤の種類を変えて同様に試験したところ、ほぼ同様の結果が得られた。

【0044】

【表2】

表2 各製品の評価試験結果

	対照例	実施例 4	実施例 5	実施例 6
処方 (100ml当たり)				
プロポリスエキス	0.5 ml	0.5 ml	0.5 ml	0.5 ml
蔗糖脂肪酸エステル	0.05 g	0.05 g	0.05 g	0.05 g
キサンタンガム	—	0.005 g	0.01 g	0.02 g
蜂蜜	30.0 g	30.0 g	30.0 g	30.0 g
無水クエン酸	0.05 g	0.05 g	0.05 g	0.05 g
pH				
Bx	2.96	2.96	2.98	3.00
溶解状態				
	塊状物析出 無し	塊状物析出 無し	塊状物析出 無し	塊状物析出 無し
風味				
	刺激味 ++	刺激味 ++	刺激味 +	刺激味 +
保存 5℃ 2週				
	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿±	乳濁 沈殿±
保存 37℃ 2週				
	乳濁 沈殿++	乳濁 沈殿+	乳濁 沈殿±	乳濁 沈殿±

++～±：塊状物析出、刺激味、沈殿の量的な多少の程度を示す。

## 【0045】

【発明の効果】以上詳述したとおり、本発明は、プロポリスエキスを安定に含有する飲料、更には、プロポリスエキス及びキサンタンガム、乳化剤を含有することを特徴とするプロポリス含有飲料に関するものであり、本発明によれば、次のような効果が得られる。

(1) プロポリスエキス自体には、何らの処理を施すことなく、その分散性を良好なものに改善することができる。

きる。

(2) 従来、長期保存した際にみられた二次沈殿を確実に減少させて、飲料として長期保存に耐える製品を簡便に製造することができる。

(3) 口腔内におけるプロポリスに特有の強い刺激味を40 頗著に低減させて、その食味を良好なものに改善することができる。